

PATENT

Atty. Dkt. No. APPM/005191.C1/ISM/CORE/MCVD/PJS
Serial No.: 10/792,323

REMARKS

This is intended as a full and complete response to the Final Office Action dated December 16, 2005, having a shortened statutory period for response set to expire on March 16, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1, 8, 9, and 16 are amended to clarify the invention. Claims 3 and 17 are amended to correct matters of form. Applicant submits that no new matter has been added and respectfully requests entry of the claims as amended.

Claims 8, 9, and 11-14 stand rejected under 35 U.S.C. §102(e) as being anticipated by *Kim*, (U.S. Patent No. 6,424,800). Applicant respectfully traverses the rejection on grounds that the reference *Kim* does not teach or suggest the limitations of the invention as claimed. Specifically, *Kim* does not teach an apparatus for vaporizing a solid precursor that comprises a housing defining an interior volume having an inlet for receiving a carrier gas, an outlet for delivering the carrier gas to an atomic layer deposition chamber, and a vaporized precursor, wherein the vaporized precursor originates from a solid tantalum-containing precursor, a first wall to support the inlet, at least two surfaces contained in the housing for application of the solid tantalum-containing precursor, wherein the at least two surfaces are located on a second wall adjoining and substantially perpendicular to the first wall and the at least two surfaces are spaced to allow passage of the carrier gas, and a heating member contained in the housing, as recited in claim 8. Withdrawal of the rejection to claim 8, and claims dependent thereon, is respectfully requested.

Claims 1-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Onoe, et al.* (U.S. Patent No. 6,270,839), in view of *Suntola, et al.* (U.S. Patent No. 4,413,022). Applicant respectfully traverses the rejection on grounds that the combination of the references *Onoe, et al.* and *Suntola, et al.* does not teach, suggest, or provide motivation for the invention as claimed.

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Applicant submits that the combined references *Onoe, et al.* and *Suntola, et al.* do not teach, suggest, or provide motivation for an apparatus for vaporizing a solid precursor, comprising a housing defining an interior volume having an inlet for receiving a carrier gas and an outlet operably connected to an atomic layer deposition chamber, at least two surfaces contained in the housing, wherein the at least two surfaces contain stainless steel, have a tantalum-containing solid precursor applied thereto, and are spaced to allow passage of the carrier gas therebetween, and at least one heating member contained in the housing, wherein the inlet is substantially perpendicular to the at least two surfaces, as recited in claim 1. Withdrawal of the rejection to claim 1, and claims dependent thereon, is respectfully requested.

Claims 8-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Onoe, et al.* (U.S. Patent No. 6,270,839) in view of *Suntola, et al.* (U.S. Patent No. 4,413,022), as applied to claims 1-7, and further in view of *Turner, et al.* (U.S. Patent No. 5,674,786) or *Tsubouchi, et al.* (U.S. Patent No. 5,421,895). Applicant respectfully traverses the rejection on grounds that the combination of the references *Onoe, et al.* and *Suntola, et al.* as applied to claims 1-7, and further in view of *Turner, et al.* or *Tsubouchi, et al.*, does not teach, suggest, or provide motivation for the invention as claimed.

The combined references *Onoe, et al.*, *Suntola, et al.*, and *Turner, et al.* or *Tsubouchi, et al.* do not teach or suggest an apparatus for vaporizing a solid precursor that comprises a housing defining an interior volume having an inlet for receiving a carrier gas, an outlet for delivering the carrier gas to an atomic layer deposition chamber, and a vaporized precursor, wherein the vaporized precursor originates from a solid tantalum-containing precursor, a first wall to support the inlet, at least two surfaces contained in the housing for application of the solid tantalum-containing precursor, wherein the at least two surfaces are located on a second wall adjoining and substantially perpendicular to the first wall and the at least two surfaces are spaced to allow passage of the carrier gas, and a heating member contained in the

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housing, as recited in claim 8. Withdrawal of the rejection to claim 8, and claims dependent thereon, is respectfully requested.

Claims 16-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Onoe, et al.* in view of *Horsky* (U.S. Patent No. 6,452,338). Applicant respectfully traverses the rejection on grounds that the combination of the references *Onoe, et al.* and *Horsky* does not teach, suggest, or provide motivation for the invention as claimed.

Applicant submits that the combined references *Onoe, et al.* and *Horsky* do not teach, suggest, or provide motivation for an apparatus for vaporizing a solid precursor, comprising a housing defining an interior volume having an inlet for receiving a carrier gas and an outlet for delivering the carrier gas and a vaporized precursor to an atomic layer deposition chamber, wherein the vaporized precursor originates from a solid tantalum-containing precursor, at least two surfaces contained in the housing, wherein the at least two surfaces contain a ceramic material, have the solid precursor applied thereto, and are spaced to allow passage of the carrier gas therebetween, and at least one heating member contained in at least one wall of the housing, as recited in claim 16. Withdrawal of the rejection to claim 16, and claims dependent thereon, is respectfully requested.

Specifically regarding cancelled claims 7, 15, and 20, Applicant respectfully disagrees with the Examiner's assertion that various materials would have been obvious to one skilled in the art and this is evidenced by the absence of a reference to teach the use of these materials. Applicant also respectfully traverses the Examiner's characterization of the materials being a non-limitation to an apparatus claim. Applicant has added one of these materials to each independent claim and submits that the material is a tangible material included in the apparatus that narrows each claim. Applicant respectfully requests entry of the claims as amended and reconsideration of the Examiner's assertions regarding the specific materials.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

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Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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